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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/941,546	08/30/2001	Howard E. Rhodes	M4065.0422/P422	6096

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EXAMINER

KANG, DONGHEE

ART UNIT PAPER NUMBER

2811

DATE MAILED: 11/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/941,546

Applicant(s)

RHODES, HOWARD E.

Examiner

Donghee Kang

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-79, 113-131 and 141-152 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-79, 113-123 and 141-150 is/are allowed.
- 6) ☒ Claim(s) 124-131, 151 and 152 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Acknowledgment

1. Applicant's Argument and Response to Paper No.10 have been entered and made of Record. Claims 1-79, 113-131 & 141-152 are pending in this application.

Claims **1-79, 113-123, & 141-150** are allowed in the previous office action

Drawings

2. The drawings were received on September 10, 2003. These drawings are acceptable.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims **124-131** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US 3,860,956) in view of Merrill et al. (US 6,150,683).

Regarding claim **124**, Kubo et al. teach a color imaging sensor comprising (Fig.4g):

a substrate (20) having a first defined region (25) for sensing a first color wavelength component; a second defined region (27) for sensing a second color wavelength component; and a third defined region (26) for sensing a third color wavelength component, wherein the lower boundaries of each of said first, second and third defined regions are located at respective different depths from a surface of said

substrate and are displaced laterally such that said defined regions do not overlap (See also Col.4, lines 61-62).

Kubo et al. do not teach one of said region is a retrograde well doped to a first conductivity type. Merrill et al. teach in Fig.5 region 212 is formed as a retrograde well (Col.6, lines 33-35) to reduce the noise. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the retrograde well as taught by Merrill into the Kubo's device in order to reduce the noise in the cell.

Regarding claim **125**, Kubo et al. teach the lower boundary of each of said first, second and third defined regions corresponds to the depth of penetration of a respective color wavelength component into said substrate (Col.4, lines 27-30).

Regarding claim **126**, Kubo et al. teach that said first (R), second (G) and third (B) color wavelength components are red, green and blue, respectively.

Regarding claim **127**, Kubo et al. teach at least two of said first, second and third defined regions having a substantially different depth from each other.

Regarding claim **128**, Kubo et al. teach all three of said first, second and third defined regions have a substantially different depth from each other.

Regarding claim **129**, Kubo et al. teach said first depth (25) is substantially greater than said second depth (27).

Regarding claim **130**, Kubo et al. teach said first depth (25) is substantially greater than said third depth (26).

Regarding claim **131**, Kubo et al. teach said third depth (26) is substantially greater than said second depth (27).

5. Claims **151-152** are rejected under 35 U.S.C. 103(a) as being unpatentable over Kubo et al. (US 3,860,956) in view of Merrill et al. (US 6,150,683) and further in view of Tsuei et al. (US 5,945,722).

Kubo et al. as modified by Merrill teach substantially the entire claimed invention, as applied to claim 124 explained above, except that said first, second, and third defined regions are each separated by an isolation region.

However, Tsuei et al. in Fig.3 teach that first (110), second (114), and third (112) defined regions are each separated by an isolation region (FOX).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the isolation region as taught by Tsuei into the Kubo's device in order to provide an isolation region that would prevent an interference between said first, second, and third defined regions in the color imaging sensor.

Allowable Subject Matter

6. Claims **1-79, 113-123, & 141-150** have been allowed (see previous office action).

Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Maxiflex.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie C Lee can be reached on 703-308-1690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.



Donghee Kang
Examiner
Art Unit 2811

dhk